Paper No. 17

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte YOSHIO SATOH, OSAMU IKATA, HIDEMA UCHISIHIBA,
TAKASHI MATSUDA, TOKIHIRO NISHIHARA,
MITSUO TAKANATSU, and HAJIME TANIGUCHI

Appeal No. 2001-2200
Application No. 09/286,328

HEARD: January 23, 2002

Before JERRY SMITH, LALL, and BLANKENSHIP, Administrative Patent Judges.

BLANKENSHIP, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-45, which are all the claims in this application for reissue of U.S. Patent 5,773,917 ("the '917 patent").

We affirm-in-part, and enter a new ground of rejection in accordance with 37 CFR § 1.196(b).

BACKGROUND

The invention is directed to a surface acoustic wave device, and a process for producing the device. Representative claims 1, 8, and 34 are reproduced below.[1]

1. A surface acoustic wave device comprising:

a piezoelectric substrate; and

an electrode formed on said substrate [by alternately laminating] of an aluminum copper alloy film and a copper film [such that said electrode has a three-layered laminate structure with two aluminum-copper alloy films sandwiching one copper film] with $CuAl_2$ formed at an interface between said aluminum-copper alloy film and said copper film.

8. A surface acoustic wave device comprising:

a piezoelectric substrate; and

an electrode formed on said substrate, the electrode having aluminum-copper alloy films and a $CuAl_2$ layer formed between the aluminum- copper alloy films.

34. A surface acoustic wave device comprising:

a piezoelectric substrate; and

an electrode formed on said substrate by a process comprising the steps of :

laminating an aluminum-copper alloy film and a copper film thereby forming a laminated structure; and

heating the laminated structure.

[1] We note that appellants' amendment filed Jun. 12, 2000 complies with neither the current nor earlier version of 37 CFR § 1.173. See Manual of Patent Examining Procedure § 1453, "Amendments to Reissue Applications" (Eighth Ed. Aug. 2001).

Claims 1-45 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

Claims 8-13 and 20-45 stand rejected under 35 U.S.C. § 112, first paragraph, as based on a disclosure which is not enabling.

Claims 34-36 and 43-45 stand rejected under 35 U.S.C. § 102, as being anticipated by appellants' admitted prior art.

We refer to the Final Rejection (mailed Jul. 10, 2000) and the Examiner's Answer (mailed Jan. 17, 2001) for a statement of the examiner's position and to the Brief (filed Dec. 11, 2000) and the Reply Brief (filed Mar. 19, 2001) for appellants' position with respect to the claims which stand rejected.

OPINION

‘917 patent disclosure

As set forth in the Background of the Invention (particularly columns 3 to 5) of the '917 patent, the inventors endeavored to improve over the conventional surface acoustic wave filter structure shown in "PRIOR ART" Figure 1. The heat treatment required in forming the device, carried out at 400° C, was thought to be detrimental by increasing the grain size of the aluminum (Al), leading to a shorter than expected life for the filter. In particular, appellants wished to minimize dynamic stress migration of the Al, caused by internal stress resulting from the acoustic surface wave propagation. A

way to decrease the dynamic stress migration was to avoid the consequential increase in grain size associated with the heat treatment.

The problem with foregoing heat treatment at 400° C, however, was that the alloy between Al and the transition metal was not formed between the layers. There was no structure to function as a "stopper" for inhibiting cracks occurring in the film (i.e., the growth of voids). '917 patent at col. 5, ll. 5-15.

Appellants' solution was to alternately laminate "a film of aluminum containing at least copper added thereto or an alloy of such aluminum and a copper film." Id. at ll. 27-32. For reducing stress migration of the aluminum, the sum of the internal stresses of the Al alloy and the copper (Cu) film was to be zero or compressive. Id. at ll. 34-41. Appellants broadly described embodying the invention using two or three-layered laminate structures, requiring temperatures no greater than 200° C in forming the laminates. Id. at col. 5, l. 42 - col. 6, l. 39.

Appellants disclosed, in more detail, two and three-layered laminates consistent with their summary description of the invention. Appellants' description of the preferred embodiments underscored the conviction that stress migration was reduced by mutual bonding between the copper in the Al-Cu films and the Cu film in contact within the structure. See, e.g., id. at col. 8, ll. 1-54.

Section 112, second paragraph rejection

Claims 1-45 are rejected under 35 U.S.C. § 112, second paragraph, "as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections." (Answer at 4.)

The function of claims is (1) to point out what the invention is in such a way as to distinguish it from the prior art; and (2) to define the scope of protection afforded by the patent. In re Vamco Mach., Inc., 752 F.2d 1564, 1577 n.5, 224 USPQ 617, 635 n.5 (Fed. Cir. 1985). The legal standard for definiteness is whether a claim reasonably apprises those of skill in the art of its scope. In re Warmerdam, 33 F.3d 1354, 1361, 31 USPQ2d 1754, 1759 (Fed. Cir. 1994). The inquiry is merely to determine whether the claims do, in fact, set out and circumscribe a particular area with a reasonable degree of precision and particularity. In re Moore, 439 F.2d 1232, 1235, 169 USPQ 236, 238 (CCPA 1971). The definiteness of the language employed must be analyzed -- not in a vacuum, but in light of the teachings of the prior art and of the particular application disclosure as it would be interpreted by one possessing the ordinary level of skill in the pertinent art. Id.

In our opinion, the examiner's stated concerns with respect to lack of specificity do not demonstrate that the scope of the claims cannot reasonably be ascertained. For example, with respect to instant claim 30, a surface acoustic wave device having a piezoelectric substrate and an electrode having two or more aluminum-copper alloy

films and two or more $CuAl_2$ layers formed between the aluminum-copper alloy films would infringe the claim. The clear language of the claim reasonably apprises those skilled in the art of its scope. Similarly, the clear limitations may be compared to prior art structures to evaluate patentability of the claim over the prior art structures.

Although many of the instant claims may be broad in scope due to minimal language with respect to structural interrelationships, we do not consider the lack of specificity to render the metes and bounds of the claims to be not reasonably ascertainable. We do not consider the examiner's stated concerns with the claims before us to reflect indefiniteness within the meaning of 35 U.S.C. § 112, second paragraph, and thus do not sustain the rejection.

Section 112, first paragraph rejection

After careful study of the entirety of the '917 patent disclosure, we agree with the examiner's determination to the extent that claims which fail to require copper film in contact with aluminum alloy film are not supported by an enabling disclosure. See In re Mayhew, 527 F.2d 1229, 1233, 188 USPQ 356, 358 (CCPA 1976) (claims which failed to recite the use of a cooling zone, specially located, which the specification taught as essential, was not supported by enabling disclosure). We turn to consider appellants' arguments to the contrary.

Appellants argue that "[i]n the present application, there is no statement that the copper film must remain in the final electrode." (Brief at 7.) At the oral hearing, counsel

for appellants was questioned in particular on the meaning of column 8, lines 41 through 45 of the '917 patent. Counsel's position was that the disclosure taught using Cu film in the process of making the device, but did not require any of the Cu film to remain in the final product.

We find the objective teachings of the '917 patent to be contrary to appellants' current position. As we have previously noted, the patent teaches bonding between the Al alloy film and the Cu film to counteract dynamic stress migration of the Al. The dynamic stress migration occurs as a result of propagation of the acoustic surface waves -- which propagate during normal use of the finished product. Moreover, we find no disclosure that the Cu film somehow disappears during the process of making the device. The patent, particularly at column 7, lines 53 through 56 and column 8, lines 26 through 40, stresses that keeping the temperature below 200° C results in relatively slight effects in the materials which make up the device, although the temperature is sufficient to facilitate the desired bonding between the layers.

As support for the view that the patent teaches that "the copper layer is not required," appellants point to the ‘917 patent’s description of disappointing prior studies using chromium (Cr) as a transition metal layered between Al films (at column 3, lines 9 through 30). We agree with appellants to the extent that the description may be viewed as conveying to the artisan that "merely putting a metal into an electrode structure does not provide a sufficient benefit." (Brief at 7.) The disclosure as a whole conveys that

the essential requirements of the invention are more specific than merely putting a metal into an electrode structure.

We are thus unpersuaded that there is no basis for the section 112, first paragraph rejection. Appellants group claims 8-13, 20-33, and 40 together, and submit that the claims are "product claims" which "do not recite a copper layer." (See Brief at 4 and 6.) We sustain the rejection of claims 8, 10-13, 20, 23-33, and 40. However, we cannot sustain the rejection of claims 9, 21, and 26. Each of claims 9 and 21 (with 26 depending from 21) further limits the claimed product by reciting process steps used in forming the product. We interpret claims 9 and 21 as requiring the subject matter that the disclosure teaches to be essential to practice of the invention.

Appellants also group claims 34-36 and 43-45 together, and argue that "these claims positively recite a copper film in the process." (Brief at 8.) We consider each of independent claims 34 and 43 (with claims 35 and 36 depending from 34) to set forth subject matter, which includes the process steps requiring lamination of aluminum-copper alloy film and copper film, consistent with essential practice of the invention. We therefore do not sustain the rejection of claims 34-36 and 43. Contrary to appellants' arguments, however, claims 44 and 45 do not set forth steps of laminating an aluminum-copper alloy film and a copper film -- the claims recite "copper," rather than "copper film." We sustain the rejection of claims 44 and 45.

Appellants group claims 37-39 together, and argue that the claims sufficiently define the product with process limitations, including the limitation that the filter is

formed by laminating an aluminum-copper alloy film and a copper film. (See Brief at 8.) We do not sustain the rejection of claims 37-39.

Finally, we observe that independent claims 41 and 42 fail to require the subject matter taught as essential to the invention. We also note that appellants have not grouped the claims with any of the arguments submitted in response to the section 112, first paragraph rejection. We sustain the rejection of claims 41 and 42.

Thus, with respect to the rejection of the claims under 35 U.S.C. § 112, first paragraph for lack of an enabling disclosure, we sustain the rejection of claims 8, 10-13, 20, 22-25, 27-33, 40-42, 44, and 45; we do not sustain the rejection of claims 9, 21, 26, 34-39, and 43.

Section 102 rejection

The examiner has rejected claims 34-36 and 43-45 as being "clearly anticipated" by appellants' admitted prior art, as shown in Figure 1 of the '917 patent. Appellants' position is that the process limitations in the product claims serve to distinguish over the admitted prior art.

Process steps per se cannot serve to limit product claims. See In re Stephens, 345 F.2d 1020, 1023, 145 USPQ 656, 658 (CCPA 1965) ("We think it well settled that the presence of process limitations in product claims, which product does not otherwise patentably distinguish over the prior art, cannot impart patentability to that product."). The relevant inquiry is how the process recitations might define structure. See, e.g., In

re Garnero, 412 F.2d 276, 279, 162 USPQ 221, 223 (CCPA 1969) (recitation of "interbonded one to another by interfusion between the surfaces of the perlite particles" construed as structural limitation in product claim); In re Dike, 394 F.2d 584, 589, 157 USPQ 581, 585 (CCPA 1968) (no error in USPTO board holding that term "blow-molded" in claims drawn to integral plastic container and handle failed to distinguish over prior art, because term related to process of making the article, and was not definitive as to the structure of the article).

As described at column 3, lines 42 through 64 of the '917 patent, the prior art structure consisted of a piezoelectric substrate 11, Al-Cu alloy films 12, 14, a tantalum (Ta) film 13, and Al-Ta alloy films 15, 16. According to the teachings of the '917 patent, however, the steps of laminating an aluminum-copper alloy film and a copper film, and heating the laminated structure, as recited in independent claims 34 and 43, yield a product having a copper film layer.

The examiner bears the initial burden of presenting a prima facie case of unpatentability. In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). Since the structure shown in Figure 1 of the '917 patent does not contain a copper film layer which results from appellants' claimed process steps, and the examiner has not provided a convincing rationale as to why the prior art structure is deemed to be the same as the claimed product, we conclude that applicants have no burden to show that the claimed product is different from the prior art product. We do not sustain the section 102 rejection of claims 34-36 and 43.

Each of claims 44 and 45 requires that the electrode is formed by a process including "laminating aluminum-copper alloy films and copper." The '917 patent does not teach what structure may result from the claimed steps. However, because the rejection fails to explain why the claimed steps might reasonably be expected to yield a product no different from admitted prior art Figure 1, we cannot sustain the rejection of the claims. Thus, the section 102 rejection applied against claims 34-36 and 43-45 is not sustained.

New ground of rejection -- 37 CFR § 1.196(b)

We enter the following new ground of rejection against the claims in accordance with 37 CFR § 1.196(b): Claims 8, 10-13, 20, 22-25, 27-33, 40-42, 44, and 45 are rejected under 35 U.S.C. § 112, first paragraph, as appellants' disclosure fails to provide written description for the invention now claimed.

The “description of the invention” requirement in 35 U.S.C. § 112, first paragraph is separate and distinct from the enablement requirement. In re Barker, 559 F.2d 588, 591, 194 USPQ 470, 472 (CCPA 1977). To comply with the written description requirement, an applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the "written description" inquiry, whatever is now claimed. Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991).

We refer to our findings, supra, with respect to the teachings of the '917 patent disclosure. Based on our review of the '917 patent, we conclude that the disclosure does not show that appellants were in possession of the invention now claimed. The disclosure lacks written description for claims which fail to require copper film in contact with aluminum alloy film.

Whether one skilled in the art would find the instantly claimed invention obvious in view of the disclosure is not an issue in the "written description" inquiry. Barker, 559 F.2d at 593, 194 USPQ at 474. Thus, whether an artisan might realize that it is possible to forego the features taught as essential to the invention is irrelevant with respect to the present inquiry.

Appellants cannot now obtain claims of the scope presented. See Gentry Gallery Inc. v. Berkline Corp., 134 F.3d 1473, 1479, 45 USPQ2d 1498, 1503 (Fed. Cir. 1998) ("Here, as indicated above, it is clear that [the inventor] considered the location of the recliner controls on the console to be an essential element of his invention. Accordingly, his original disclosure serves to limit the permissible breadth of his later-drafted claims."); In re Simon, 302 F.2d 737, 737-41, 133 USPQ 524, 525-27 (CCPA 1962) (claims presented in reissue application which lacked ingredients in patented claims were not described in appellants' specification).

CONCLUSION

We have sustained the rejection of claims 8, 10-13, 20, 22-25, 27-33, 40-42, 44, and 45 under 35 U.S.C. § 112, first paragraph for lack of an enabling disclosure, but have not sustained the rejection of claims 9, 21, 26, 34-39, and 43. We have not sustained the rejection under 35 U.S.C. § 102, nor the rejection under 35 U.S.C. § 112, second paragraph. The examiner's decision in rejecting claims 1-45 is thus affirmed-in-part.

Claims 8, 10-13, 20, 22-25, 27-33, 40-42, 44, and 45 are newly rejected by us under 35 U.S.C. § 112, first paragraph, because the disclosure fails to provide written description for the invention now claimed.

This decision contains a new ground of rejection pursuant to 37 CFR § 1.196(b). 37 CFR § 1.196(b) provides that, "A new ground of rejection shall not be considered final for purposes of judicial review."

37 CFR § 1.196(b) also provides that the appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of proceedings (§ 1.197(c)) as to the rejected claim:

> (1) Submit an appropriate amendment of the claim so rejected or a showing of facts relating to the claim so rejected, or both, and have the matter reconsidered by the examiner, in which event the application will be remanded to the examiner
> . . . .

> (2) Request that the application be reheard under § 1.197(b) by the Board of Patent Appeals and Interferences upon the same record. . . .

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART -- 37 CFR § 1.196(b)

JERRY SMITH Administrative Patent Judge	)
PARSHOTAM S. LALL Administrative Patent Judge	) BOARD OF PATENT) APPEALS) AND) INTERFERENCES
HOWARD B. BLANKENSHIP Administrative Patent Judge	)

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